Journal of Catalysis

EDITORS:

W. Keith Hall

Frank S. Stone

ASSOCIATE EDITOR: Robert L. Burwell, Jr.

EDITORIAL BOARD:

R. B. Anderson M. Boudart

J. B. Butt

A. Cimino

R. P. Eischens

P. C. Gravelle

G. L. Haller

J. W. Hightower

G. W. Keulks

H. Knözinger

M. Kraus

A. Nielsen

J. Rabo

J. F. Roth

W. M. H. Sachtler

J. J. F. Scholten

K. Tamaru

S. J. Thomson

P. B. Wells

J. T. Yates

Volume 97 • 1986



ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando New York Austin London Montreal Sydney Tokyo Toronto Copyright © 1986 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated, per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for creating new collective works, or for resale. Copy fees for pre-1986 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0021-9517/86 \$3.00

MADE IN THE UNITED STATES OF AMERICA

Contents of Volume 97

Number 1, January 1986

E. RUCKENSTEIN AND I. SUSHUMNA. Multilayer Surface Films Coexisting with Crystallites in Model Fe/Al ₂ O ₃ Catalysts	1
YUSAKU TAKITA, TETSURO TASHIRO, YUMIE SAITO, AND FUMIAKI HORI. The Effects of Water Coadsorption on the Adsorption of Oxygen over Metal Oxides. I.	
Temperature-Programmed Desorption Study of Co ₃ O ₄	25
Moderate Temperatures E. E. Miró, D. R. Ardiles, E. A. Lombardo, and J. O. Petunchi. Continuous-	36
Stirred Tank Reactor (CSTR) Transient Studies in Heterogeneous Catalysis. CO Oxidation over CuY Zeolite	43
MASATOSHI NAGAI, TOHRU SATO, AND AKIRA AIBA. Poisoning Effect of Nitrogen Compounds on Dibenzothiophene Hydrodesulfurization on Sulfided NiMo/	50
Al ₂ O ₃ Catalysts and Relation to Gas-Phase Basicity	52
terated Substrates M. Albert Vannice, Lori C. Hasselbring, and Bishwajit Sen. Direct Mea-	59
surements of Heats of Adsorption on Platinum Catalysts. II. CO on Pt Dispersed on SiO ₂ , Al ₂ O ₃ , SiO ₂ -Al ₂ O ₃ , and TiO ₂	66
K. Marcinkowska, L. Rodrigo, S. Kaliaguine, and P. C. Roberge. Characterization of Supported Mo(VI)/SiO ₂ . The Effects of Water Leaching and Support	75
Dehydroxylation	75 85
JP. DATH AND J. P. DAUCHOT. Oxidation of Carbon Monoxide on Thin Film Catalysts: Characterization in a Large Range of Pressure by Detection of a	0.5
Transition between Stationary States	100
Nickel Catalysts. VI. Support Effects on the Individual and Competitive Hydrogenation of Allyl Alcohol and Its α and β Methyl Derivatives	108
RONALD A. DICTOR AND ALEXIS T. BELL. Fischer-Tropsch Synthesis over Reduced and Unreduced Iron Oxide Catalysts	121
TiO ₂ and TiO ₂ -Promoted Rh/SiO ₂	137
sorption of CO and D ₂ from Silica-Supported Ruthenium: Evidence for Spillover of D ₂	150
D. HASENBERG AND L. D. SCHMIDT. HCN Synthesis from CH ₄ and NH ₃ on Platinum	156
CLAUDINE AUBERT, ROBERT DURAND, PATRICK GENESTE, AND CLAUDE MOREAU. Hydroprocessing of Dibenzothiophene, Phenothiazine, Phenoxathiin, Thian-	1/0
threne, and Thioxanthene on a Sulfided NiO-MoO ₃ /γ-Al ₂ O ₃ Catalyst T-A. Lin, L. H. Schwartz, and J. B. Butt. Iron Alloy Fischer-Tropsch Catalysts. V. FeCo on Y Zeolite	169 177
lysts. v. reco on 1 Zeonte	1//

H. F. J. VAN 'T BLIK AND R. PRINS. Characterization of Supported Cobalt and Cobalt-Rhodium Catalysts. I. Temperature-Programmed Reduction (TPR) and Oxidation (TPO) of Co-Rh/Al ₂ 0 ₃	188
Supported Cobalt and Cobalt–Rhodium Catalysts. II. Temperature-Programmed Reduction (TPR) and Oxidation (TPO) of Co/TiO ₂ and Co–Rh/TiO ₂ . H. F. J. VAN 'T BLIK, D. C. KONINGSBERGER, AND R. PRINS. Characterization of	200
Supported Cobalt and Cobalt–Rhodium Catalysts. III. Temperature-Programmed Reduction (TPR), Oxidation (TPO), and EXAFS of Co–Rh/SiO ₂	210
C. CÁCERES, J. L. G. FIERRO, A. LÓPEZ AGUDO, F. SEVERINO, AND J. LAINE. Relation between Hydrodesulfurization Activity and the State of Promoters in Precursor Calcined Ni-Co-Mo/Al ₂ O ₃ Catalysts	219
S. R. KELEMEN, H. FREUND, AND C. A. MIMS. The Interaction of KOH with Clean and Oxidized Carbon Surfaces	228
Notes	
M. PATRICIA SUÁREZ AND DANIEL G. LÖFFLER. HCN Synthesis from NH ₃ and CH ₄ on Pt at Atmospheric Pressure	240
MARTIN McMILLAN, JACOB S. BRINEN, AND GARY L. HALLER. Solid-State Magic-Angle Spinning ²⁷ Al NMR Used to Study Alumina Support and Surface Compound Structure of Catalysts	243
tion and Its Effect on Nitric Oxide Chemisorption and Temperature-Programmed Desorption	248
S. J. TREMONT AND P. L. MILLS. Catalytic Hydrodesulfurization of o-Amino-	252
benzyl Sulfides	252
Catalysts. VI. FeCo on ZSM-5	261
Douglas W. McKee. The Catalytic Effects of Uranium Oxides and Salts in Carbon Oxidation	264
ROBERT L. AUGUSTINE AND MICHAEL E. LENCZYK. A Comparison of the Single Turnover and Standard Solution Phase Techniques in Alkene Deuterations	269
MASAKAZU ANPO, KOICHIRO MIHARA, AND YUTAKA KUBOKAWA. Photoin-duced Methanol Conversion to Hydrocarbons on Supported MoO ₃ Cata-	209
lysts	272
JANA NOVÁKOVÁ, LUDMILA KUBELKOVÁ, AND ZDENĚK DOLEJŠEK. Deuterium-Labeled Methanol in Reactions with HZSM-5 Zeolite	277
Letters to the Editors	
G. C. CHINCHEN AND K. C. WAUGH. The Chemical State of Copper during Methanol Synthesis	200
T. H. FLEISCH AND R. L. MIEVILLE. The Chemical State of Copper during	280
Methanol Synthesis. Reply to Chinchen and Waugh	284
Number 2, February 1986	
J. M. D. TASCON, P. GRANGE, AND B. DELMON. Catalytic Synergy between MoO ₃ and BiPO ₄ in N-Ethyl Formamide Dehydration. I. Catalytic Properties, Reducibility, and Reoxidizability of Mixtures of MoO ₃ and BiPO ₄	287

I M D Trecov D Brown M Cours D D D Colling	
J. M. D. TASCON, P. BERTRAND, M. GENET, AND B. DELMON. Catalytic Synergy between MoO ₃ and BiPO ₄ in N-Ethyl Formamide Dehydration. II. Characterization of Mixtures of MoO ₃ and BiPO ₄	200
J. M. D. Tascon, M. M. Mestdagh, and B. Delmon. Catalytic Synergy between MoO ₃ and BiPO ₄ in N-Ethyl Formamide Dehydration. III. An ESR Study of	300
Reduction Properties of the Mixtures of MoO ₃ and BiPO ₄	312
Re ₂ O ₇ /SiO ₂ Catalyst in Olefin Metathesis	321
Transients: Methanation over Raney Nickel. H. PRALIAUD, J. A. DALMON, C. MIRODATOS, AND G. A. MARTIN. Influence of	330
Potassium Salt Addition on the Catalytic Properties of Silica-Supported Nickel Mario L. Occelli and Thomas P. Debies. Boron Effects in a Zeolite-Based Hydrotreating Catalyst	344
R. SZYMANSKI, H. CHARCOSSET, P. GALLEZOT, J. MASSARDIER, AND L. TOURNAYAN. Characterization of Platinum-Zirconium Alloys by Competitive Hy-	331
drogenation of Toluene and Benzene	366
Catalyst Components	374 385
Reduction of Promoted Cobalt-Kieselguhr Fischer-Tropsch Catalysts A. SARKANY. Mechanism of the Bond-Shift Skeletal Isomerization of Alkanes over	390
Pd, Ni, and Ni-Ag Catalysts: Evidence for Participation of Intermediate Carbenes	407
Catalyst Deactivation by Coke Deposition: Application to Butene Dehydrogenation	416
M. F. GILLET AND S. CHANNAKHONE. Crystallographic Structure and Chemisorption Activity of Palladium/Mica Model Catalysts. I. Structure and Morphology	427
of Small Palladium Particles	427
dium Particles V. Matolin, E. Gillet, and S. Channakhone. Crystallographic Structure and	437
Chemisorption Activity of Palladium/Mica Model Catalysts. III. Static Secondary Ion Mass Spectrometry Study of CO Chemisorption on Small Palladium	
Particles	448
the Observed Phenomena	456
Molecular Sieves. I. Evaluation of Thermodynamic and Kinetic Parameters by the Gas Chromatographic Pulse Method	469
Lucio Forni and Carlo F. Viscardi. Sorption-Diffusion in Molecular Sieves. II. Aromatics in Y and ZSM-5 Zeolites	480
D. M. Bibby, N. B. Milestone, J. E. Patterson, and L. P. Aldridge. Coke Formation in Zeolite ZSM-5	493

R. Burch and C. I. Warburton. Zr-Containing Pillared Interlayer Clays. I. Preparation and Structural Characterisation	503
R. Burch and C. I. Warburton. Zr-Containing Pillared Interlayer Clays. II. Catalytic Activity for the Conversion of Methanol into Hydrocarbons	511
M. AYYOOB AND M. S. HEGDE. Chlorination of Silver Dosed with Potassium and Barium in Presence of Oxygen: An X-Ray Photoelectron Spectroscopy Study	516
P. J. F. HARRIS. The Sintering of Platinum Particles in an Alumina-Supported Catalyst: Further Transmission Electron Microscopy Studies	527
J. JOFFRE, P. GENESTE, AND D. A. LERNER. A Quantum-Chemical Study of Site Modeling for the Adsorption and Desulfurization of Thiophene	543
D. J. SAJKOWSKI, J. Y. LEE, J. SCHWANK, Y. TIAN, AND J. G. GOODWIN, JR. The Role of the Zeolite in the Hydrogenolysis of C ₂ and C ₃ Hydrocarbons on RuNaY	
Catalysts	549
Note	
H. Brumberger, Y. C. Chang, M. G. Phillips, F. Delaglio, and J. Goodisman. Sintering of Pt/Al ₂ O ₃ from Continuous Small-Angle X-Ray Scattering	561
Letters to the Editors	
RALPH W. MATTHEWS. Photocatalytic Oxidation of Chlorobenzene in Aqueous Suspensions of Titanium Dioxide	565
DAVID F. OLLIS. Reply	569
AUTHOR INDEX FOR VOLUME 97	570